

EXECUTIVE SUMMARY

TABLE OF CONTENTS

ES.1	INTRODUCTION	E-1
ES.2	DIFFERENCES BETWEEN THE DRAFT AND FINAL EIS	E-4
ES.3	PURPOSE AND NEED FOR THE PROPOSED ACTION	E-10
ES.4	DESCRIPTION OF THE PROPOSED ACTION	E-10
ES.5	ALTERNATIVES CONSIDERED IN THIS FINAL EIS	E-12
ES.6	LEAD AND COOPERATING AGENCY DECISIONS	E-15
ES.6.1	The Board	E-16
ES.6.2	U.S. Forest Service	E-17
ES.6.3	U.S. Bureau of Land Management	E-18
ES.6.4	U.S. Army Corps of Engineers	E-19
ES.6.5	U.S. Bureau of Reclamation	E-19
ES.6.6	U.S. Coast Guard	E-20
ES.7	SCOPING, AGENCY COORDINATION AND PUBLIC INVOLVEMENT	E-20
ES.7.1	Public Scoping Process	E-20
ES.7.2	Opportunity for Comment	E-21
ES.7.3	Additional Public Outreach	E-22
ES.8	OVERVIEW OF SEA'S ENVIRONMENTAL ANALYSIS	E-23
ES.9	SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS	E-24
ES.10	SEA'S RECOMMENDED MITIGATION	E-25
ES.11	DISTRIBUTION AND AVAILABILITY OF THE FINAL EIS	E-26

ATTACHMENTS**TABLES TO THE EXECUTIVE SUMMARY**

<u>Table Number</u>		<u>Page</u>
ES-1	Resources Along New Rail Construction in Wyoming and Western South Dakota Significantly Adversely Impacted By Action Alternatives	E-31
ES-2	Resources Along New Rail Construction in Wyoming and Western South Dakota Significantly Adversely Impacted By Action Alternatives	E-32
ES-3	Resources Along New Rail Construction in Wyoming and Western South Dakota Significantly Adversely Impacted By Action Alternatives	E-33
ES-4	Resources Along New Rail Construction Alternatives in Mankato, Minnesota Significantly Adversely Impacted By Action Alternatives	E-34
ES-5	Resources Along New Rail Construction in Rochester, Minnesota Significantly Adversely Impacted By Action Alternatives	E-35
ES-6	Resources Along New Rail Construction in Brookings, South Dakota Significantly Adversely Impacted By Action Alternatives	E-36
ES-7	Resources Along New Rail Construction in Pierre, South Dakota Significantly Adversely Impacted By Action Alternatives	E-37
ES-8	Summary of Powder River Basin Expansion Project Alternatives Wyoming, South Dakota, and Minnesota	E-38

* * * * *

CHAPTER 1 **INTRODUCTION**

TABLE OF CONTENTS

1.1	THE ENVIRONMENTAL IMPACT STATEMENT PROCESS OVERVIEW	1-1
1.2	THE POWDER RIVER BASIN EXPANSION PROJECT	1-3
1.3	PRB DRAFT EIS SCOPING PROCESS	1-4
1.3.1	DM&E's Proposed New Rail Construction	1-5
1.3.2	DM&E's Proposed Rehabilitation Projects	1-6
1.3.3	Alternatives to DM&E's Proposed Routes	1-7
1.3.4	Draft EIS Alternatives	1-8
1.4	PRELIMINARY CONCLUSIONS IN THE DRAFT EIS	1-10
1.5	COMMENT PERIOD	1-20
1.6	FINAL EIS DEVELOPMENT	1-23
1.6.1	Conclusion of the DM&E Proceeding	1-23
1.6.2	Lead and Cooperating Agency Decisions	1-24
1.6.2.1	The Board	1-25
1.6.2.2	U.S. Forest Service	1-25
1.6.2.3	U.S. Bureau of Land Management	1-26
1.6.2.4	U.S. Army Corps of Engineers	1-26
1.6.2.5	U.S. Bureau of Reclamation	1-26
1.6.2.6	U.S. Coast Guard	1-27
1.7	ORGANIZATION OF THE FINAL EIS	1-27
1.8	DISTRIBUTION AND AVAILABILITY OF THE FINAL EIS	1-31

CHAPTER 2
PURPOSE AND NEED

TABLE OF CONTENTS

2.1	INTRODUCTION	2-1
2.2	PURPOSE OF PROPOSED ACTION	2-2
2.3	NEED FOR PROPOSED ACTION	2-3
2.3.1	Safe and Reliable Rail Service	2-3
2.3.2	National Energy Policies	2-6
2.3.3	Increased Energy Demand	2-12
2.3.4	Increased Demand for PRB Coal	2-13
2.3.5	Increased Rail Capacity	2-15
2.3.6	Increased Rail Competition	2-17
2.4	CONCLUSION	2-19

CHAPTER 3 **RAIL LINE EXTENSION**

TABLE OF CONTENTS

3.1	RAIL LINE EXTENSION ALTERNATIVES IN THE DRAFT EIS	3-1
3.1.1	Railroad Rehabilitation and Improvement Financing Program	3-3
3.1.2	Modified Alternative D	3-6
3.1.2.1	Development of Alignment for Modified D	3-8
3.1.2.2	Development of Grade Profile for Modified D	3-16
3.1.2.3	SEA's Conclusion on Modified D	3-19
3.2	ENVIRONMENTAL IMPACTS OF EXTENSION ALTERNATIVES	3-19
3.2.1	Safety	3-20
3.2.2	Transportation	3-24
3.2.3	Land Use	3-27
3.2.3.1	Ranching	3-27
3.2.3.2	Farming	3-29
3.2.3.3	Residential	3-29
3.2.3.4	Minerals and Mining	3-32
3.2.3.5	Other Land Use	3-33
3.2.4	Socioeconomics	3-34
3.2.4.1	Population and Demographics	3-34
3.2.4.2	Employment and Income	3-36
3.2.4.2.1	Farming	3-36
3.2.4.2.2	Ranching	3-37
3.2.4.2.3	Other Businesses	3-41
3.2.4.3	Public Services and Fiscal Condition	3-42
3.2.4.4	Other Quality of Life Issues	3-43
3.2.5	Native American Tribe Issues	3-44
3.2.5.1	Treaty Issues	3-44
3.2.5.2	Traditional Cultural Properties	3-46
3.2.6	Cultural Resources	3-48
3.2.7	Water Resources	3-51
3.2.7.1	Surface Water	3-51
3.2.7.2	Groundwater	3-55
3.2.7.3	Wetlands	3-56
3.2.8	Recreation	3-58
3.2.9	Biological Resources	3-61
3.2.9.1	Wildlife	3-61
3.2.9.2	Threatened and Endangered Species	3-63

3.2.10	Noise and Vibration	3-64
3.2.11	Air Quality	3-65
3.2.12	Hazardous Materials	3-73
3.2.13	Geology and Soils	3-75
3.2.14	Environmental Justice	3-77
3.3	SEA'S FINAL RECOMMENDATIONS	3-82
3.3.1	The Alternatives Considered	3-83
3.3.1.1	Safety	3-84
3.3.1.2	Geology	3-84
3.3.1.3	Soils	3-84
3.3.1.4	Paleontological Resources	3-85
3.3.1.5	Land Use	3-85
3.3.1.6	Water Resources	3-86
3.3.1.7	Wetlands	3-86
3.3.1.8	Air Quality	3-86
3.3.1.9	Vegetation	3-87
3.3.1.10	Cultural Resources and Traditional Cultural Properties	3-87
3.3.1.11	Aesthetics	3-88
3.3.1.12	Threatened and Endangered Species	3-88
3.3.1.13	Summary	3-89
3.3.2	Alternative Route Variations	3-90
3.3.2.1	Spring Creek and Phiney Flat Alternative Route Variations in South Dakota	3-90
3.3.2.2	Hay Canyon Segment, Oral Segment, and WG Divide Alternative Route Variations in South Dakota	3-91
3.3.2.3	Black Thunder Mine Loop Alternative Route Variations In Wyoming	3-95
3.3.2.4	North Antelope Mine Loop Alternative Route Variations In Wyoming	3-95
3.3.2.5	Conclusion	3-96

CHAPTER 4

EXISTING RAIL LINE, RAIL YARDS, AND SIDINGS

TABLE OF CONTENTS

4.1	EXISTING RAIL LINE	4-1
4.1.1	SEA's Recommendation	4-4
4.1.2	Safety	4-4
4.1.3	Wildlife	4-7
4.1.4	Impaired Waters	4-9
4.1.5	Recreation	4-11
4.1.6	Vibration	4-12
4.1.7	Environmental Justice	4-13
4.2	RAIL YARDS	4-18
4.2.1	East Staging and Marshaling Yard (Lewiston)	4-18
4.2.1.1	Geology	4-19
4.2.1.2	Transportation	4-20
4.2.1.3	Agricultural Land Use	4-21
4.2.1.4	SEA's Recommendation	4-21
4.2.2	Middle East Staging and Marshaling Yard (Mankato)	4-22
4.2.2.1	Minneopa State Park	4-23
4.2.2.2	Water Resources	4-23
4.2.2.3	Transportation Access	4-25
4.2.2.4	SEA's Recommendation	4-26
4.2.3	Central Staging and Marshaling Yard	4-26
4.3	SIDINGS	4-26

CHAPTER 5 PIERRE, SOUTH DAKOTA

TABLE OF CONTENTS

5.1	ALTERNATIVES CONSIDERED	5-3
5.2	COMPARISON OF IMPACTS	5-5
5.2.1	Climate	5-6
5.2.2	Topography	5-6
5.2.3	Geology and Soils	5-7
5.2.4	Paleontological Resources	5-10
5.2.5	Land Use	5-11
5.2.5.1	Agriculture	5-11
5.2.5.2	Residential	5-13
5.2.5.3	Business and Industrial	5-15
5.2.5.4	Public Facilities	5-16
5.2.6	Water Resources	5-19
5.2.6.1	Surface Water Impacts	5-19
5.2.6.2	Wetlands	5-22
5.2.6.3	Groundwater	5-25
5.2.7	Air Quality	5-25
5.2.8	Noise and Vibration	5-27
5.2.8.1	Noise	5-28
5.2.8.2	Vibration	5-30
5.2.9	Biological Resources	5-31
5.2.9.1	Vegetation	5-32
5.2.9.2	Wildlife	5-33
5.2.9.3	Aquatic and Fisheries	5-35
5.2.9.4	Endangered, Threatened, and Sensitive Species	5-36
5.2.10	Transportation	5-39
5.2.11	Safety	5-42
5.2.12	Hazardous Material	5-47
5.2.13	Energy Resources	5-51
5.2.14	Cultural Resources	5-51
5.2.15	Socioeconomics	5-58
5.2.16	Environmental Justice	5-62
5.2.17	Recreation	5-64
5.2.18	Aesthetics	5-67
5.3	SEA's RECOMMENDATIONS	5-69

CHAPTER 6 **BROOKINGS, SOUTH DAKOTA**

TABLE OF CONTENTS

6.1	ALTERNATIVES	6-2
6.2	COMPARISON OF IMPACTS	6-3
6.2.1	Land Use	6-4
6.2.1.1	Agriculture	6-4
6.2.1.2	Residential	6-5
6.2.1.3	Business and Industry	6-6
6.2.2	Water Resources	6-7
6.2.2.1	Surface Water	6-7
6.2.2.2	Wetlands	6-9
6.2.2.3	Groundwater	6-11
6.2.3	Air Quality	6-11
6.2.4	Noise and Vibration	6-12
6.2.4.1	Noise	6-12
6.2.4.2	Vibration	6-13
6.2.5	Safety	6-13
6.2.6	Transportation	6-15
6.2.7	Cultural Resources	6-16
6.2.8	Environmental Justice	6-17
6.3	SEA'S RECOMMENDATION	6-19

CHAPTER 7 **MANKATO, MINNESOTA**

TABLE OF CONTENTS

7.1	INTRODUCTION	7-1
7.2	DESCRIPTION OF ALTERNATIVES	7-3
7.2.1	Alternative M-1: No Action	7-3
7.2.2	Alternative M-2: Mankato Southern Route Alternative	7-5
7.2.3	Alternative M-3: Existing Rail Corridor Alternative	7-6
7.3	RECOMMENDED ALTERNATIVE	7-7
7.3.1	Draft EIS	7-7
7.3.2	Final EIS	7-9
7.4	COMPARISON OF IMPACTS	7-10
7.4.1	Climate	7-11
7.4.2	Topography	7-11
7.4.3	Geology and Soils	7-13
7.4.4	Paleontological Resources	7-15
7.4.5	Land Use	7-16
7.4.5.1	Agriculture	7-16
7.4.5.2	Residential	7-18
7.4.5.3	Business and Industry	7-19
7.4.5.4	Public Services	7-21
7.4.5.5	Public Lands	7-23
7.4.6	Water Resources	7-24
7.4.6.1	Surface Water	7-24
7.4.6.2	Wetlands	7-28
7.4.6.3	Groundwater	7-30
7.4.7	Air Quality	7-32
7.4.8	Noise and Vibration	7-33
7.4.8.1	Noise	7-33
7.4.8.2	Vibration	7-37
7.4.9	Biological Resources	7-41
7.4.9.1	Vegetation	7-41
7.4.9.2	Wildlife	7-44
7.4.9.3	Aquatic Resources and Fisheries	7-45
7.4.9.4	Threatened and Endangered Species	7-46
7.4.10	Transportation	7-47

7.4.11 Safety	7-50
7.4.12 Hazardous Materials	7-55
7.4.13 Energy Resources	7-58
7.4.14 Cultural Resources	7-58
7.4.15 Socioeconomics	7-61
7.4.16 Environmental Justice	7-64
7.4.17 Recreation	7-66
7.4.18 Aesthetics	7-69
7.5 SEA'S RECOMMENDATIONS	7-71

CHAPTER 8 **OWATONNA, MINNESOTA**

TABLE OF CONTENTS

8.1	SEA's RECOMMENDATIONS	8-2
8.2	DM&E's OPERATIONS OVER THE I&M	8-3
8.3	MITIGATION ISSUES AND OWATONNA'S NEGOTIATED AGREEMENT ...	8-5
8.4	WETLAND IMPACTS	8-7
8.5	FUTURE RESIDENTIAL DEVELOPMENT	8-8
8.6	CONCLUSION	8-11

LIST OF ATTACHMENTS

Map 35	Existing DM&E Rail Line - Steele County, MN - Owatonna SE, Owatonna Quads
Map 36	Existing DM&E Rail Line - Steele County, MN - Owatonna Quad
Map 37	Existing DM&E Rail Line - Steele County, MN - Owatonna, Saco Quads
Map 38	Existing DM&E Rail Line - Steele County, MN - Owatonna, Saco Quads
Map 39	Existing DM&E Rail Line - Steele County, MN - Owatonna Quad
Map 40	Existing DM&E Rail Line - Steele County, MN - Owatonna, Saco Quads

* * * * *

CHAPTER 9 **ROCHESTER, MINNESOTA**

TABLE OF CONTENTS

9.1	INTRODUCTION	9-1
9.1.1	The Board's Jurisdiction to Require City Bypasses	9-2
9.1.2	Rochester Alternatives Analyzed	9-3
9.2	DESCRIPTION OF ALTERNATIVES R-2 AND R-4	9-4
9.3	COMPARISON OF IMPACTS	9-5
9.3.1	Topography	9-5
9.3.2	Geological Hazards	9-7
9.3.3	Soil Impacts	9-15
9.3.4	Paleontological Resources	9-16
9.3.5	Land Use	9-16
9.3.5.1	Agriculture	9-17
9.3.5.2	Residential	9-19
9.3.5.3	Business and Industrial	9-20
9.3.5.4	Minerals and Mining	9-23
9.3.5.5	Public Facilities	9-24
9.3.5.6	Public Lands	9-25
9.3.6	Water Resources	9-26
9.3.6.1	Surface Water	9-26
9.3.6.2	Wetlands	9-27
9.3.6.3	Groundwater	9-31
9.3.7	Air Quality	9-34
9.3.8	Noise and Vibration	9-43
9.3.8.1	Noise	9-44
9.3.8.2	Vibration	9-47
9.3.9	Biological Resources	9-52
9.3.9.1	Vegetation	9-52
9.3.9.2	Wildlife	9-53
9.3.9.3	Aquatic Resources and Fisheries	9-55
9.3.9.4	Threatened and Endangered Species	9-56
9.3.10	Transportation	9-56
9.3.11	Safety	9-66
9.3.12	Hazardous Materials	9-72
9.3.13	Energy Resources	9-73
9.3.14	Cultural Resources	9-74
9.3.15	Socioeconomics	9-76
9.3.16	Environmental Justice	9-78

9.3.17 Recreation	9-81
9.3.18 Aesthetics	9-82
9.4 SEA'S RECOMMENDATIONS	9-82

CHAPTER 10 **CUMULATIVE IMPACTS**

TABLE OF CONTENTS

10.1	OVERVIEW AND METHODOLOGY	10-1
10.2	AIR QUALITY	10-2
10.3	TRANSPORTATION	10-6
10.3.1	Barge Traffic	10-6
10.3.2	Midwest Regional Rail Initiative	10-10
10.3.3	Road Initiatives	10-11
10.4	CONCLUSION	10-11

ATTACHMENT

Revised Draft EIS Table 5.3-1 - Summary of Environmental Impacts From Minnesota Projects

* * * * *

CHAPTER 11 **PUBLIC OUTREACH**

TABLE OF CONTENTS

11.1	INTRODUCTION	11-1
11.2	PUBLIC INVOLVEMENT APPROACH AND PROCESS	11-1
11.3	SCOPING	11-1
11.4	DRAFT AND FINAL EIS NOTIFICATION	11-2
11.5	ENVIRONMENTAL JUSTICE POPULATIONS - IDENTIFICATION AND OUTREACH	11-4
11.6	INDIAN TRIBES - IDENTIFICATION AND OUTREACH	11-5
11.7	GOVERNMENT-TO-GOVERNMENT CONSULTATION WITH TRIBES	11-6
11.8	AGENCY CONSULTATIONS	11-6
11.9	PROCESS FOR PUBLIC COMMENT ON THE DRAFT EIS	11-7
11.10	PUBLIC MEETINGS	11-7
11.11	CONCLUSION OF THE ENVIRONMENTAL REVIEW PROCESS	11-8

CHAPTER 12

RECOMMENDED ENVIRONMENTAL CONDITIONS

TABLE OF CONTENTS

12.1	OVERVIEW	12-1
12.2	PRELIMINARY MITIGATION PRESENTED IN THE DRAFT EIS	12-2
12.3	COMMENTS RECEIVED ON THE DRAFT EIS IN RESPONSE TO SEA'S REQUEST FOR ADDITIONAL ENVIRONMENTAL MITIGATION	12-3
12.4	THE BOARD'S DECEMBER 10,1998 DECISION AND SEA'S FINAL RECOMMENDATIONS	12-4
12.5	NEGOTIATED AGREEMENTS	12-5
12.6	REQUESTED CHANGES SEA DID NOT MAKE FOR THE FINAL EIS MITIGATION	12-7
12.7	NOTES (BY IMPACT AREA) ON SEA'S FINAL RECOMMENDED MITIGATION MEASURES	12-8
12.7.1	General Mitigation Measures	12-8
12.7.2	Site-Specific Mitigation	12-19
12.8	COST ESTIMATES FOR FINAL RECOMMENDED MITIGATION, INCLUDING MITIGATION ESTIMATES FOR PERMITTED BY COOPERATING AGENCIES	12-22
12.9	RECOMMENDED MITIGATION CONDITIONS	12-24
12.9.1	Recommended General Mitigation Measures	12-25
12.9.1.1	Safety	12-25
12.9.1.2	Transportation	12-31
12.9.1.3	Land Use	12-31
12.9.1.4	Water Resources	12-36
12.9.1.5	Recreation	12-39
12.9.1.6	Air Quality	12-40
12.9.1.7	Noise and Vibration	12-41
12.9.1.8	Biological Resources	12-46
12.9.1.9	Cultural Resources	12-48
12.9.1.10	Environmental Justice	12-48
12.9.1.11	Geology and Soils	12-49

12.9.1.12	Paleontological Resources	12-50
12.9.3	Negotiated Agreements	12-51
12.9.4	Recommended Site-Specific Mitigation Measures	12-52
12.9.4.1	Minnesota	12-52
12.9.4.2	South Dakota	12-55
12.9.4.3	Wyoming	12-55
12.9.4.4	Monitoring and Enforcement	12-56

LIST OF ATTACHMENTS

Attachment A - Corps of Engineers Guidelines for Mitigation of Wetlands and Waters
of the United States

Attachment B - U.S. Forest Service Mitigation Plan Requirements for DM&E Railroad

Attachment C - Cost for Recommended Mitigation Measures - Section of Environmental Analysis

Attachment D - Costs for Recommended Mitigation Measures - Corps of Engineers

Attachment E - Costs for Recommended Mitigation Measures - Forest Service

Attachment F - Costs for Recommended Mitigation Measures - Bureau of Land Management

Attachment G - U.S. Bureau of Reclamation Mitigation Costs

* * * * *

LIST OF APPENDICES

Volume IV-A

- | | |
|------------|----------------------------------|
| Appendix A | Draft EIS Index |
| Appendix B | Draft EIS Comments and Responses |

Volume IV-B

- | | |
|------------|---|
| Appendix C | Additional Correspondence |
| Appendix D | Mitigation Plans |
| Appendix E | Negotiated Agreements |
| Appendix F | Memorandum of Agreement |
| Appendix G | Programmatic Agreement, and Identification Plan |
| Appendix H | Biological Assessment, and Biological Opinion |
| Appendix I | U.S. Forest Service Roads Inventory |

Volume IV-C

- | | |
|------------|-----------------------|
| Appendix J | DM&E Rail Siding Plan |
| Appendix K | Safety Tables |
| Appendix L | Transportation Tables |

Volume IV-D

- | | |
|------------|-----------------------------------|
| Appendix M | Technical Reports |
| Appendix N | Environmental Justice Methodology |
| Appendix O | Public Outreach |

Appendix C

Table of Contents

EPA Letter: Comparison of Wetland Impacts Using NWI Maps and Delineated Wetlands	page C-1
EPA Letter: Analysis of Modified Alternative D	page C-7
Letter from Perimeter: Federal Medical Center Security Fence	page C-15

Appendix E

Table of Contents

Negotiated Agreements	E-1
Memorandum of Agreement Between DM&E Railroad and The United States Bureau of Reclamation	E-3

Appendix H

TABLE OF CONTENTS

	Page
Part 1 Introduction.....	1-1
Proposed Project Description.....	1-1
Minnesota and South Dakota Rebuild	1-3
Minnesota.....	1-3
South Dakota.....	1-3
Minnesota New Construction	1-3
Mankato	1-3
M-1 (No Action)	1-3
M-2 (Proposed Action or Southern Alternative.....	1-3
M-3 (Existing Corridor or Middle Alternative	1-3
Owatonna	1-7
O-1 (No Action)	1-7
O-2 (Proposed Action).....	1-7
O-3 (Alternative Alignment)	1-7
Bypasses.....	1-7
Owatonna Bypass	1-7
Rochester Bypass.....	1-7
Brookings Bypass	1-7
Staging Yards	1-11
Middle East Staging and Marshaling Yard.....	1-11
Waseca Marshaling Yard.....	1-11
East Staging and Marshaling Yard	1-11
South Dakota and Wyoming New Construction	1-11
Alternative A (No Action)	1-12
Alternative B (Proposed Action).....	1-12
Alternative C (Modified Proposed Action	1-12
Alternative C with Phiney Flat Alternative.....	1-12
Alternative C with W G Flat Alternative	1-12
Alternative D (Existing Corridor Alternative)	1-12
Staging Yards under Alternative B	1-14
Middle West Staging and Marshaling Yard	1-14
Middle Staging Marshaling Yards and Shops	1-14
BNSF Interchange Yard	1-14
West Staging Yard.....	1-14
Staging Yards under Alternative C	1-15
Middle West Staging and Marshaling Yard	1-15
Middle Staging Marshaling Yards and Shops	1-15
BNSF Interchange Yard	1-15
West Staging Yard-Option A	1-15
West Staging Yard-Option B	1-15
Staging Yards under Alternative D.....	1-15
Middle West Staging and Marshaling Yard	1-15
Middle Staging Marshaling Yards and Shops	1-15
BNSF Interchange Yard	1-15
West Staging Yard.....	1-15
Rebuild Construction Activities	1-15
New Construction Activities	1-17
Project Operations	1-19

Maintenance Activities	1-19
Potential Species Impacts	1-20
Part 2 Relevant Ecological Impacts	2-1
Grasslands.....	2-1
Minnesota.....	2-1
South Dakota.....	2-1
Wyoming.....	2-1
Woodlands	2-2
Minnesota.....	2-2
South Dakota.....	2-2
Wyoming.....	2-2
Riparian Areas	2-2
Minnesota.....	2-2
South Dakota.....	2-3
Wyoming.....	2-3
Wetlands	2-4
Minnesota.....	2-4
South Dakota.....	2-4
Wyoming.....	2-4
Soils	2-5
Minnesota.....	2-5
South Dakota.....	2-5
Wyoming.....	2-5
Part 3 Potentially Impacted Species.....	3-1
Black-footed ferret.....	3-1
Project Area.....	3-1
Piping Plover	3-3
Project Area.....	3-4
Whooping Crane	3-4
Project Area.....	3-5
Interior Least Tern	3-6
Project Area.....	3-7
Topeka Shiner	3-8
Project Area.....	3-8
Pallid Sturgeon	3-9
Project Area.....	3-9
American Burying Beetle	3-9
Project Area.....	3-10
Minnesota Dwarf Trout Lily.....	3-10
Project Area.....	3-11
Higgin's Eye Pearly Mussel	3-11
Project Area.....	3-11
Winged Maple Leaf Mussel	3-11
Project Area.....	3-12
Karner Blue Butterfly	3-12
Project Area.....	3-12
Ute Ladies'-Tresses Orchid	3-13
Project Area.....	3-13
Prairie Bush-Clover	3-15

Project Area.....	3-15
Leedy's Roseroot	3-15
Project Area.....	3-16
Western Prairie Fringed Orchid.....	3-16
Project Area.....	3-16
Bald Eagle	3-17
Project Area.....	3-18
Mountain Plover	3-23
Project Area.....	3-23
Swift Fox	3-24
Project Area.....	3-24
Sturgeon Chub	3-25
Project Area.....	3-25
Black-Tailed Prairie Dog.....	3-26
Project Area.....	3-26
Part 4 Impact Evaluation.....	4-1
Black-Footed Ferret.....	4-1
Minnesota.....	4-1
South Dakota and Wyoming	4-1
Alternative B	4-2
Construction Impacts	4-2
Operational Impacts	4-2
Alternative C	4-2
Construction Impacts	4-2
Operational Impacts	4-2
Alternative C with the Phiney Flat Variation	4-3
Alternative C with the W G Flat Variation.....	4-3
Alternative D	4-3
Construction Impacts	4-3
Operational Impacts	4-3
Piping Plover	4-3
Minnesota.....	4-3
South Dakota and Wyoming	4-3
Alternative B	4-3
Construction Impacts	4-3
Operational Impacts	4-4
Alternative C	4-4
Construction Impacts	4-4
Operational Impacts	4-4
Alternative C with the Phiney Flat Variation	4-4
Alternative C with the W G Flat Variation.....	4-4
Alternative D	4-5
Construction Impacts	4-5
Operational Impacts	4-5
Whooping Crane.....	4-5
Minnesota.....	4-5
South Dakota and Wyoming	4-5
Interior Least Tern	4-5
Minnesota.....	4-5
Construction Impacts	4-5

Operational Impacts.....	4-6
South Dakota and Wyoming	4-6
Alternative B	4-7
Construction Impacts	4-7
Operational Impacts	4-6
Alternative C	4-7
Construction Impacts	4-7
Operational Impacts	4-7
Alternative C with the Phiney Flat Variation	4-7
Alternative C with the W G Flat Variation.....	4-7
Alternative D	4-7
Construction Impacts	4-7
Operational Impacts	4-7
Topeka Shiner.....	4-8
Minnesota.....	4-8
Construction Impacts	4-8
Operational Impacts.....	4-8
South Dakota and Wyoming	4-8
Construction Impacts	4-8
Operational Impacts.....	4-8
Pallid Sturgeon	4-9
Minnesota.....	4-9
South Dakota and Wyoming	4-9
Alternatives	4-9
American Burying Beetle	4-9
Minnesota.....	4-9
South Dakota and Wyoming	4-9
Alternative B	4-10
Construction Impacts	4-10
Operational Impacts	4-11
Alternative C	4-11
Construction Impacts	4-11
Operational Impacts	4-11
Alternative C with the Phiney Flat Variation	4-11
Construction Impacts	4-11
Operational Impacts	4-12
Alternative C with the W G Flat Variation.....	4-12
Construction Impacts	4-12
Operational Impacts	4-12
Alternative D	4-12
Construction Impacts	4-12
Operational Impacts	4-13
Minnesota Dwarf Trout Lily.....	4-13
Minnesota.....	4-13
South Dakota and Wyoming	4-13
Higgin's Eye Pearly Mussel	4-13
Minnesota.....	4-13
South Dakota and Wyoming	4-13
Winged Mapleleaf Mussel.....	4-14
Minnesota.....	4-14
South Dakota and Wyoming	4-14

Karner Blue Butterfly	4-14
Minnesota.....	4-14
South Dakota and Wyoming	4-14
Ute Ladies-Tresses Orchid	4-14
Minnesota.....	4-14
South Dakota and Wyoming	4-14
Alternative B	4-14
Construction Impacts	4-14
Operational Impacts	4-14
Alternative C	4-14
Construction Impacts	4-15
Operational Impacts	4-15
Alternative C with the Phiney Flat Variation	4-15
Construction Impacts	4-15
Operational Impacts	4-15
Alternative C with the W G Flat Variation.....	4-15
Construction Impacts	4-15
Operational Impacts	4-15
Alternative D	4-15
Construction Impacts	4-16
Operational Impacts	4-16
Prairie Bush-Clover	4-16
Minnesota.....	4-16
Construction Impacts.....	4-16
Operational Impacts.....	4-16
South Dakota and Wyoming	4-17
Leedy's Roseroot.....	4-17
Minnesota.....	4-17
South Dakota and Wyoming	4-17
Western Prairie Fringed Orchid.....	4-17
Minnesota.....	4-17
South Dakota and Wyoming	4-17
Bald Eagle	4-17
Minnesota.....	4-17
Construction Impacts.....	4-18
Operational Impacts.....	4-18
South Dakota and Wyoming	4-18
Alternative B	4-19
Construction Impacts	4-19
Operational Impacts	4-19
Alternative C	4-20
Construction Impacts	4-20
Operational Impacts	4-20
Alternative C with the Phiney Flat Variation	4-21
Construction Impacts	4-21
Operational Impacts	4-21
Alternative C with the W G Flat Variation.....	4-21
Construction Impacts	4-21
Operational Impacts	4-22
Alternative D	4-22
Construction Impacts	4-22

Operational Impacts	4-22
Mountain Plover	4-23
Minnesota.....	4-23
South Dakota and Wyoming	4-23
Alternative B	4-23
Construction Impacts	4-23
Operational Impacts	4-23
Alternative C	4-23
Construction Impacts	4-23
Operational Impacts	4-23
Alternative C with the Phiney Flat Variation	4-24
Alternative C with the W G Flat Variation.....	4-24
Alternative D	4-24
Construction Impacts	4-24
Operational Impacts	4-24
Swift Fox	4-24
Minnesota.....	4-24
South Dakota and Wyoming	4-24
Alternative B	4-24
Construction Impacts	4-24
Operational Impacts	4-24
Alternative C	4-24
Construction Impacts	4-24
Operational Impacts	4-24
Alternative C with the Phiney Flat Variation	4-24
Alternative C with the W G Flat Variation.....	4-24
Alternative D	4-25
Construction Impacts	4-25
Operational Impacts	4-25
Sturgeon Chub	4-25
Minnesota.....	4-25
South Dakota and Wyoming	4-25
Alternative B	4-25
Construction Impacts	4-25
Operational Impacts	4-25
Alternative C	4-26
Construction Impacts	4-26
Operational Impacts	4-26
Alternative C with the Phiney Flat Variation	4-26
Construction Impacts	4-26
Operational Impacts	4-27
Alternative C with the W G Flat Variation.....	4-27
Construction Impacts	4-27
Operational Impacts	4-27
Alternative D	4-27
Construction Impacts	4-27
Operational Impacts	4-28
Black-Tailed Prairie Dog	4-28
Minnesota.....	4-28
South Dakota and Wyoming	4-28
Alternative B	4-28

Construction Impacts	4-28
Operational Impacts	4-28
Alternative C	4-28
Construction Impacts	4-28
Operational Impacts	4-29
Alternative C with the Phiney Flat Variation	4-29
Alternative C with the W G Flat Variation.....	4-29
Alternative D	4-29
Construction Impacts	4-29
Operational Impacts	4-29
Part 5 Cumulative Impacts.....	5-1
Black-Footed Ferret.....	5-1
Existing Contributing Impacts	5-1
Foreseeable Impacts	5-1
Piping Plover	5-1
Existing Contributing Factors	5-1
Foreseeable Factors.....	5-2
Whooping Crane.....	5-2
Existing Contributing Factors	5-2
Foreseeable Impacts	5-2
Interior Least Tern	5-2
Existing Contributing Factors	5-2
Foreseeable Impacts	5-3
Topeka Shiner.....	5-3
Existing Contributing Factors	5-3
Foreseeable Impacts	5-3
Pallid Sturgeon	5-3
Existing Contributing Factors	5-3
Foreseeable Impacts	5-3
American Burying Beetle	5-3
Existing Contributing Factors	5-4
Foreseeable Impacts	5-4
Minnesota Dwarf Trout Lily.....	5-4
Existing Contributing Factors	5-4
Foreseeable Impacts	5-4
Higgin's Eye Pearly Mussel	5-4
Existing Contributing Factors	5-4
Foreseeable Impacts	5-4
Winged Mapleleaf Mussel.....	5-4
Existing Contributing Factors	5-4
Foreseeable Impacts	5-5
Karner Blue Butterfly	5-5
Existing Contributing Factors	5-5
Foreseeable Impacts	5-5
Ute Ladies' -Tresses Orchid	5-5
Existing Contributing Factors	5-5
Foreseeable Impacts	5-5
Prairie Bush-Clover	5-5
Existing Contributing Factors	5-5
Foreseeable Impacts	5-5

Leedy's Roseroot.....	5-5
Existing Contributing Factors	5-5
Foreseeable Impacts	5-5
Western Prairie Fringed Orchid.....	5-6
Existing Contributing Factors	5-6
Foreseeable Impacts	5-6
Bald Eagle	5-6
Existing Contributing Factors	5-6
Foreseeable Impacts	5-6
Mountain Plover	5-6
Existing Contributing Factors	5-6
Foreseeable Impacts	5-6
Swift Fox	5-7
Existing Contributing Factors	5-7
Foreseeable Impacts	5-7
Sturgeon Chub	5-7
Existing Contributing Factors	5-7
Foreseeable Impacts	5-8
Black-Tailed Prairie Dog.....	5-8
Existing Contributing Factors	5-8
Foreseeable Impacts	5-8
Part 6 Conclusions	6-1
Black-Footed Ferret.....	6-1
Piping Plover	6-1
Whooping Crane.....	6-1
Interior Least Tern	6-2
Topeka Shiner.....	6-2
Pallid Sturgeon	6-2
American Burying Beetle	6-2
Minnesota Dwarf Trout Lily.....	6-3
Higgin's Eye Pearly Mussel	6-3
Winged Mapleleaf Mussel.....	6-3
Karner Blue Butterfly	6-3
Ute Ladies'-Tresses Orchid	6-3
Prairie Bush-Clover	6-3
Leedy's Roseroot.....	6-3
Western Prairie Fringed Orchid.....	6-4
Bald Eagle	6-4
Mountain Plover	6-4
Swift Fox	6-4
Sturgeon Chub	6-4
Black-Tailed Prairie Dog.....	6-5

CONTENTS OF APPENDIX J

Proposed Rail Yards for Alternative B, C and D	Table J-1
Siding Locations - Extension Alternative B	Table J-2
Siding Locations - Extension Alternative C	Table J-3
Siding Locations - Extension Alternative D	Table J-4
Existing DM&E System Milepost Map	Maps 1through10
Alternative B (Applicant's Original Preferred Alternative) Mile Post Overview map	
Alternative C Mile Post Overview Map	
Alternative D (via existing rail corridors through Rapid City, Smithwick, Edgmont, Newcastle, Moorcroft) Mile Post Overview Map	

Appendix K - Additional Safety Tables

Table of Contents

Accident Prediction Summary, South Dakota Rebuild, Alternative B	page K-1
Accident Prediction Summary, South Dakota Rebuild, Alternative C	page K-43
Pierre Existing Rail Line	page K-85
Pierre Bypass	page K-97
Brookings (Rail-Co) Bypass	page K-103
Mankato Alternative M-2	page K-115
Rochester Existing Rail Line	page K-121

Appendix L - Additional Transportation Tables

Table of Contents

Pre/Post-Construction Delays, South Dakota Rebuild, Alternative B	page L-1
Pre/Post-Construction Delays, South Dakota Rebuild, Alternative C	page L-27
Pierre Existing Rail Line	page L-53
Pierre Bypass	page L-61
Brookings (Rail-Co) Bypass	page L-69
Mankato Alternative M-2	page L-77
Rochester Existing Rail Line	page L-85

Appendix M - Technical Reports

Table of Contents

Ground Vibration at Mayo Clinic Magnetic Resonance Imaging Systems	page M-1
Ground Vibration at Seventh Street in Rochester due to DM&E Trains	page M-25
Flood Wall Vibration in Mankato due to Railroad Trains	page M-37
Community Noise Levels in Rochester	page M-53
Community Noise Levels in Mankato	page M-57
Evaluation of Liquefaction Potential of Soils from Train-Induced Vibration Loading for the DM&E Railroad Project at Mankato, Minnesota Site	page M-61
Geological Aspects of Potential Rail Line Rerouting, Southern Minnesota, and Western South Dakota	page M-77
Engineering Review of Proposed Modified Alternative D-Smithwick to Wall	page M-125
Pierre - Highway 14 Grade Separation	page M-129
Rochester - Broadway Grade Separation Cost Estimate	page M-133
Rochester South Bypass Preliminary Earthwork Quantities	page M-155

Appendix N - Environmental Justice Methodology

Table Of Contents

N.1	Background Information	page N-1
N.2	Summary Of Environmental Justice Analysis Methodology	page N-2
N.2.1	Methodology to Determine Environmental Justice Communities	page N-4
N.2.2	Environmental Justice Impact Analysis	page N-10
N.2.3	Environmental Justice Analysis - Existing Rail Line Reconstruction	page N-11
N.2.4	Methodology to Determine Disproportionate Impacts - Noise	page N-11
N.2.5	Methodology to Determine Disproportionate Impacts - Safety	page N-13
N.2.6	Environmental Justice Analysis - New Rail Line Construction	page N-14
N.2.7	Development of Mitigation Measures for Environmental Justice Communities	page N-15
N.2.8	Environmental Justice Issues for Native American Tribes	page N-15

Appendix O - Public Outreach

Table of Contents

Postcard requesting address confirmation and desired Draft EIS format	page O-1
Press Release on Postcard Mailing	page O-3
Public Service Announcement on Postcard Mailing	page O-5
Board Decision No. 31346 on Draft EIS	page O-7
Boards Federal Register Notice on Draft EIS	page O-12
EPA's Federal Register Notice on Draft EIS	page O-20
Legal Notice on Draft EIS	page O-28
Press Release on Draft EIS	page O-32
Public Service Announcement on Draft EIS format	page O-45
Draft EIS Distribution Letter	page O-47
Draft EIS Elected Officials Letter	page O-53
Draft EIS Library Letter	page O-55
Press Release on First Week of Public Meetings	page O-57
Press Release on Second Week of Public Meetings	page O-59
Board Decision No. 31510 on Comment Period Extension	page O-61
Press Release on Comment Period Extension	page O-65
Post Card on Comment Period Extension	page O-67

Handout from Public Meetings	page O-69
Comment Form provided at Public Meetings	page O-72
Sample Hotline Script	page O-74
Form Used To Record Calls From Hotline	page O-79
Map Request Form	page O-80
Press Release on Final EIS Preparation	page O-81
Project Update Flyer	page O-83
Outreach Plans for Communities with Additional Environmental Justice Populations	page O-85